## REMARKS

The Office Action mailed September 3, 2003 has been reviewed and carefully considered. The Examiner's reconsideration is respectfully requested in view of the above amendments and the following remarks. Claims 1-22 are pending in the present application. Claims 7 and 14 have been cancelled. Claims 1, 8 and 13-20 have been amended. New claims 21-22 have been added. No new matter has been introduced by the amendments.

Claim 14 was objected to due to informalities. Applicant has cancelled claim 14. Accordingly, withdrawal of this objection is respectfully requested.

Claims 1-7 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 has been amended to state that the step of exposing fuses the lens to the rimless supporting structure in the connection region, in accordance with the Examiner's suggestion. Claim 7 has been cancelled. Claims 2-6 depend either directly or indirectly on claim 1 and include all the limitations thereof. Accordingly, withdrawal of the rejection under §112, second paragraph, is respectfully requested.

Claims 1-3 and 6-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,824,006 to Voit (hereinafter Voit) in view of WO 01/07524 to Campbell (hereinafter Campbell) and WO 00/20157 to Jones (hereinafter Jones). Claim 1 has been amended to recite, *inter alia*, " a radiation absorbing dye having a predetermined wavelength absorbing band; exposing the radiation absorbing dye to a source

of radiation operating at a wavelength within the predetermined wavelength band of the radiation absorbing dye; and fusing the lens to the rimless supporting structure in the connection region to form an integral supporting assembly whereby optical interference from the surface of the supporting structure when viewed by the eye is substantially avoided due to its integration with the lens."

Applicant respectfully submits that Voit, Campbell and/or Jones either individually or in any combination fail to disclose or suggest the subject matter of amended claim 1.

In the rejection of claims 1-3 and 6-7, the Examiner states that Campbell teaches one of its uses of its dye is as an additive to resins to aid in thermal curing to expedite curing, and that one skilled in the art would incorporate such dye to the resin in Voit to achieve more efficient bonding. Applicant respectfully submits that such interpretation is inapplicable to the present invention as claimed. Namely, the present invention does NOT involve the addition of a dye to faciliate thermal curing and/or bonding; rather, it is the dye alone which enables fusing. Secondly, the present invention fuses two separate surfaces together such that a seamless integration is formed and the separate surfaces no longer exist, and does NOT involve wherein separate surfaces are maintained and merely joined together using a bonding agent. Each of the cited references are discussed in detail below:

Voit teaches a pair of optical spectacles comprising metal frame parts and silicate glass lenses which are bonded together using a bonding agent. Applicant respectfully submits that Voit not only involves a distinctly different construction/parts from the present invention but also utilizes a completely different processing technique in the attachment of its parts. Firstly, in terms of construction, Voit discloses silicate glass lenses and fails to disclose or suggest at least plastic lenses, essentially as claimed in

claim 1. In addition, Voit, in its use of metal frame parts, is wholly counterintuitive to the focus and objective of the present invention: to provide rimless spectacles which eliminate the need for hardware and which minimize optical interference with the lens. In contrast, Voit explicitly discloses hardware (i.e., metal parts comprising e.g., bridge 6 and mountings pieces 7). Such hardware causes undesirable obstruction to the user's vision as well as a degree of optical interference with the lens.

Secondly, the 'bonding means' disclosed in Voit is entirely different from the process and method of the present invention. The present invention essentially forms a weld between a lens and a rimless supporting structure such that a solid, "one-piece," integral pair of spectacles is formed. Namely, the 'fusing' in the present invention is the result of the radiation absorbing dye causing an exothermic reaction when the dye is exposed to either visible, near-infrared or infrared radiation (at a wavelength within the predetermined wavelength band of the dye); such exothermic reaction produces heat which results in the welding of parts together due to a slight melting of at least a portion of the plastic lens in contact with the dye. Such melting results in the formation of a weld between at least a portion of the lens and at least a portion of the part being attached. Therefore, the present invention necessitates that at least the lens is comprised of a plastic material to achieve an effective weld.

In stark contrast, Voit instead uses an ADHESIVE bonding means to join metal and glass together. The bonding agent in Voit comprises a mixture of a powder metal material and a heat curable epoxy resin and is coated to the metal frame parts and glass lenses. When heated, it is the coatings of the bonding agent which are fused with one another, not, e.g., the actual lens with metal. *See*, e.g., Col. 2, lines 50-57. Thus, it is

readily apparent that the result does not constitute a weld, as disclosed in the present invention. In addition, in the present invention, no adhesive of any kind is used.

Further, Voit relies on the bonding agent to REMAIN after, e.g., heating, to ensure that the bond between parts may be created and maintained. Thus, after joining, the adhesive and the separate surfaces of the joined pieces are still present. In contrast, in the present invention, the dye is DECOMPOSED after irradiation at least at the area of the weld such that it becomes virtually invisible; the weld however, is still successfully formed and maintained despite the dye's decomposition at the weld area. Thus, in the present invention, use of a radiation absorbing dye having a high decomposition efficiency advantageously results in optical interference from the surface of the supporting structure being minimized due to its **seamless** integration with the lens. In other words, upon fusing, no separate surfaces of the joined pieces exist in the present invention.

In light of the above, it is readily apparent that Voit fails to disclose or suggest, *inter alia*, at least "fusing the lens to the rimless supporting structure in the connection region to form an integral supporting assembly whereby optical interference from the surface of the supporting structure when viewed by the eye is substantially avoided due to its integration with the lens," essentially as claimed in claim 1.

Even assuming, *arguendo*, that a radiation absorbing dye would be incorporated in Voit as suggested by the Examiner, the fact that Voit specifically only discloses and uses GLASS lenses with metal frame parts essentially precludes any bonding as a result of using a radiation absorbing dye to effectuate a weld. Instead of welding to form a solidified optical structure of formerly-separate parts as essentially disclosed and claimed

in the present invention, the resultant structure in Voit would still consist of separate parts simply bonded together.

Advantageously, the present invention provides rimless spectacles of exceptional strength and durability due to its integrated, "one-piece" structure. The present invention essentially enables the formation of a single structure from separate parts which otherwise would require use of a mold to create. The result of the present invention is a single continuous polycarbonate construct from the lens to the supporting structure WITHOUT any use of adhesives or like bonding agents.

Campbell is concerned with providing cyanine infra-red absorbing compositions and the use of such compositions as infra-red absorbers. Campbell is focused strictly on a chemical field of art; namely in providing cyanine compounds substantially free of impurities which are volatile or highly toxic. The present invention, however, is directed towards an entirely unrelated and nonanalogous field of art; namely being focused on a method for manufacturing rimless spectacles having plastic lenses and rimless supporting structures.

Furthermore, the disclosed compositions in Campbell operate as **infra-red** radiation absorbers only; in contrast, the present invention has the ability to utilize radiation absorbing dyes having the capability to convert virtually any wavelength of radiation (e.g., not limited to infrared radiation) into heat, in part, due to the use of dyes having a high decomposition efficiency. Advantageously, the increased efficiency of such dyes lowers the required concentration level, and thereby reduces the amount of dye required for welding; in addition, such dyes decompose readily when irradiated thus rendering the dye virtually invisible at least at the weld area.

Jones discloses a method of forming a weld between workpieces over a joint region wherein a radiation absorbing material is provided at the joint region to absorb radiation and generate heat to weld the workpieces together. The process of Jones concerns industrial related welding applications; in contrast, the present invention is directed to a rimless spectacle assembly. Secondly, Jones is limited to wherein the absorption band of the radiation absorbing material is substantially outside the visible range so that the radiation absorbing material does not affect the appearance of the joint region in visible light.

In stark contrast, the present invention is not concerned with the particular absorptive characteristics of the radiation absorbing dye; instead, the present invention utilizes dyes having a high decomposition efficiency, which results in the avoidance of optical interference between the supporting assembly and lens. Jones, however, relies on the use of a radiation absorbing material having an absorption band substantially outside the visible range in order for the radiation absorbing material to not affect the appearance of the workpieces or joint region. *See*, e.g., page 12, claim 1.

Thus, Jones fails to disclose or suggest at least wherein the step of exposing the dye to radiation fuses the lens to the rimless supporting structure in the connection region to form an integral supporting assembly whereby optical interference from the surface of the supporting structure when viewed by the eye is substantially avoided due to its integration with the lens," essentially as claimed in claim 1.

Moreover, there is no suggestion, express or implied, that Voit, Campbell and Jones be combined. Even if, assuming *arguendo*, the teachings of Voit, Campbell and Jones were combined, the combination would still be legally deficient and fail to result in the present invention as claimed, since at the very least, neither Voit, Campbell or Jones either singly or

in any combination teaches fusing a lens to a rimless supporting structure in a connection region to form an integral supporting assembly whereby optical interference from the surface of the supporting structure when viewed by the eye is substantially avoided due to its integration with the lens, essentially as claimed in claim 1.

Accordingly, Voit, Campbell and Jones, taken singly or in any combination, fail to disclose or suggest the subject matter of amended claim 1. Thus, claim 1 is believed to be patentable and nonobvious over Voit in view of Campbell and/or Jones for at least the reasons stated above. Claims 2-3 and 6 depend from and include all the limitations of claim 1. Claim 7 has been cancelled. Accordingly, the dependent claims are believed to be allowable for at least the reasons given for claim 1.

Claims 4 and 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voit in view of Campbell and Jones as applied to claim 1, and further in view of U.S. Patent No. 4,692,001 to Anger (hereinafter Anger). The rejection of claims 4 and 5 are based, in part, on the Examiner's contention that Voit, Campbell and/or Jones disclose or suggest the features of claim 1, from which such claims respectively depend. Without addressing the specific rejections, however, it is clear that the combination of Voit, Campbell and/or Jones with Anger is legally deficient since, at the very least, as explained above, neither Voit, Campbell and/or Jones discloses or suggests the features of claim 1, from which claims 4 and 5 depend.

Claims 8-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voit in view of Campbell and Jones taken with Anger.

Applicant respectfully submits that Voit, Campbell, Jones and/or Anger, either individually or in any combination fail to disclose or suggest the subject matter of amended claim 8.

The Examiner has cited Voit, Campbell and Jones to reject claim 8 for the same reasons as applied to claim 1. The Examiner cited Anger in the rejection of claims 8-12 to allegedly show plastic opthalmic lenses and thermoplastic frames.

Applicant has amended claim 8 to recite "an integral optical supporting assembly" and submits that claim 8 includes elements in line with claim 1, namely, in forming an integral optical supporting assembly that substantially avoids optical interference with an ophthalmic lens. Claim 8 further recites "a radiation absorbing dye that is substantially transparent in visible light following irradiation." In light of the detailed discussion of Voit, Campbell and Jones above, the Applicant respectfully submits that neither Voit, Campbell and/or Jones disclose or suggest at least a radiation absorbing dye that is substantially transparent in visible light following irradiation, nor irradiating the dye within the dye's absorption band through the tab or lens to fuse the tab onto the ophthalmic lens thereby forming an integral optical supporting assembly that substantially avoids optical interference with the ophthalmic lens, essentially as claimed in claim 8.

In addition to the Examiner's statements that one of ordinary skill would combine/modify various features of Voit, Campbell and Jones to arrive at the present invention, the Examiner states the modification of Voit for use with plastic lenses as disclosed in Anger would be obvious to one skilled in the art.

Applicant believes that the teachings in the references of Voit, Campbell, Jones and Anger are not sufficient for one of ordinary skill in this art having the references to make the

proposed combination or modifications, and that there is a lack of suggestion or motivation, in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine reference teachings. *See* MPEP 2143.01.

Applicant further believes that the Examiner's reconstruction includes knowledge gleaned only from Applicant's disclosure so that the Examiner's conclusion of obviousness is based on improper hindsight reasoning, even though the Examiner also takes into account knowledge which was within the level of ordinary skill in this art. *See* MPEP 2145 (X)(a).

Even assuming, *arguendo,* that the above cited references were combined, Anger fails to cure the deficiencies of Voit, Campbell and Jones. Anger merely involves spectacles having structural components that, with the exception of the lenses, are made of plastic. *See,* e.g., Col. 1, lines 53-56. Anger, however, fails to disclose or suggest, *inter alia*, a radiation absorbing dye that is substantially transparent in visible light following irradiation, nor the step of irradiating the dye.. to fuse the tab onto the ophthalmic lens thereby forming an integral optical supporting assembly that substantially avoids optical interference with the ophthalmic lens, essentially as claimed in claim 8. Instead, Anger requires the use of **fastening devices 10, hinge bolts 38 and form-locking connections** to achieve assemblage of its spectacles.

Furthermore, Voit, Campbell, Jones and/or Anger, either individually or in any combination, fail to disclose or suggest, *inter alia*, providing an optically transparent, rimless **supporting tab** with a profiled surface extending in a circumferential direction, **trimming** a plastic opthalmic lens to form a periphery for mating with the surface, and irradiating the dye through the tab or the lens to fuse the tab onto the lens thereby forming an integral optical supporting assembly, essentially as claimed in claim 8.

Accordingly, Voit, Campbell, Jones and Anger, taken singly or in any combination, fail to disclose or suggest the subject matter of amended claim 8. Thus, claim 8 is believed to be patentable and nonobvious over Voit, Campbell, Jones and/or Anger for at least the reasons stated above. Claims 9-12 depend either directly or indirectly on claim 8 and thus include all the limitations of claim 8. Accordingly, the dependent claims are believed to be allowable for at least the reasons given above for claim 8.

Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Voit in view of Anger or U.S. Patent No. 5,646,706 to Izumitani (hereinafter Izumitani).

In light of the discussion of each of the references above, neither Voit nor Anger disclose or suggest, *inter alia*, irradiating the dye within the dye's absorbing band thereby fusing the lens and rimless supporting structure together at the point of contact to form an integral rimless spectacle assembly whereby optical interference from a surface of the supporting structure when viewed by the eye is substantially avoided due to its integration with the lens, essentially as claimed in amended claim 13.

Applicant respectfully submits that Izumitani fails to cure the deficiencies of Voit and Anger. Izumitani discloses a frame for rimless spectacles in which blind holes are formed in nose and temple-side edge surface portions of each spectacle lens and a pin-like projection is inserted and fixed in the corresponding blind holes using an adhesive.

Firstly, Izumitani, in its use and requirement of holes drilled into each lens to mount, wholly teaches away from the present invention, which is directed towards eliminating the need for drilling holes into the lenses. *See* specification, e.g., page 4, lines 5-7. Secondly, Izumitani requires use of an adhesive to assemble its spectacles,

which is contrary to the present invention.

Moreover, Izumitani not only lacks any suggestion, express or implied, to be combined with Voit, even assuming *arguendo* such combination was made, the combination would still fall short of the present invention in failing to disclose or suggest an integral rimless spectacle assembly whereby optical interference from a surface of the supporting structure when viewed by the eye is substantially avoided due to its integration with the lens, essentially as claimed in claim 13.

Claims 14-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voit in view of Anger or Izumitani as applied to claim 13, and further in view of Campbell and Jones. Claim 14 was cancelled. The rejection of claims 15-20 is based, in part, on the Examiner's contention that Voit, Anger and/or Izumitani disclose or suggest the features of claim 13, from which such claims respectively depend. Without addressing the specific rejections, however, it is clear that the combination of Voit, Anger and/or Izumitani is legally deficient since, at the very least, as explained above, neither Voit, Anger and/or Izumitani disclose or suggests the features of claim 13, from which claims 15-20 depend.

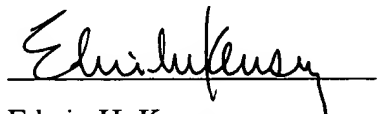
Accordingly, the Applicant respectfully requests withdrawal of all the rejections under 35 U.S.C. §103(a), and early allowance of pending claims 1-6, 8-13, and 15-22 on the merits.

## CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 1-6, 8-13, and 15-22 are patentable and nonobvious over the cited references. Consequently, the Applicant respectfully requests reconsideration and withdrawal of the rejections and allowance of the application. Such early and favorable action is earnestly solicited.

Enclosed is a check of $420 in payment of the two month Extension of Time and a check of $180 for submission of an Information Disclosure Statement. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicant's representatives Deposit Account No. 50-1433.

Respectfully submitted,

By: 

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